

A Multiple Dominance Analysis of Right Node Sharing Constructions*

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Some East Asian languages like Korean and Japanese allow a special type of coordination, in which no verbal element appears except in the last conjunct. Various approaches have been put forth as to the syntax of such verbless coordination (hereafter VLC): a right node raising analysis by Saito (1987), an LF copy analysis by Abe and Hoshi (1993, 1997), a PF deletion analysis by Kim (1997) and Sohn (2001), a PF string deletion analysis by Mukai (2003), etc. This paper observes that VLC feeds an environment where otherwise unlicensed plurality-dependent expressions in Korean (e.g., dummy plural marker *-tul*, reciprocal *selo* 'each other', and distributive adverb *kakkak* 'each') are licensed and discusses some theoretical implications that the observation makes as to the syntax of VLC. It will be shown in particular that the feeding relation in VLC is not accounted for by any of the analyses mentioned above but is best accommodated under a multiple dominance analysis along the lines of Wilder (1997, 1999).

Key words: verbless coordination (VLC), right node raising (RNR), copy, deletion, multiple dominance, linear correspondence axiom (LCA)

1. Introduction

Korean (and Japanese) allows a special type of coordination, in which

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verbal elements appear in the last conjunct only, as exemplified in (1):

- (1) John-un nonmwun-ul (kuliko) Mary-nun chayk-ul yelsimhi
 J.-TOP article-ACC and M.-TOP book-ACC hard
 ilk-ess-ta.
 read-PST-DE
 'John read articles hard and Mary read books hard.'

Various approaches have been entertained as to the syntax of such verbless coordination (hereafter VLC): a right node raising (RNR) analysis by Saito (1987), an LF copy analysis by Abe and Hoshi (1993, 1997), a PF deletion analysis by Kim (1997) and Sohn (2001), a PF string deletion analysis by Mukai (2003), etc.

This paper observes that VLC feeds an environment in which otherwise unlicensed plurality-dependent expressions (PDEs) in Korean are licensed and discusses some theoretical implications that the observation makes as to the syntax of VLC. In particular it will be shown that the feeding relation in VLC is not accounted for by any of the analyses mentioned above but is best accommodated under the multiple dominance analysis along the lines of Wilder (1997, 1999).

2. Distribution of PDEs in English and Korean

Before examining the behaviors of PDEs in VLC, let us survey the basic behaviors of PDEs in English and Korean in non-coordinate contexts.

2.1. PDEs in English

English PDEs like reciprocal *each other* and adverb *together* are locally bound by a plural element. In other words, to be licensed, they are to meet three conditions: the plurality condition, the locality condition, and the c-command condition.

Reciprocal *each other* and adverb *together* need to be linked to a plural element, as the contrast between (2a) vs. (2b) and between (3a) vs. (3b) shows:

Plurality Condition

- (2) a. **The congressmen** fought each other.
 b. ***The president** fought each other.
- (3) a. **John's parents** live together.
 b. ***John** lives together.

PDEs are also subject to the locality condition, as shown in (4) and (5) below:

Locality Condition

- (4) a. The president doesn't want [**the congressmen** to fight to each other]
 b. *The congressmen don't want [**the president** to fight each other]
- (5) a. John wants [**his parents** to live together]
 b. *They want [**John** to live together]

(4a) is fine because *each other* is linked to a plural element in the local domain, i.e., *the congressmen*. (4b) is ungrammatical, however, because the potential antecedent in the local domain, i.e., *the president*, is singular. The existence of a plural element in a non-local domain does not help. Notice, for example, (4b) is ungrammatical despite the plural subject in the matrix clause. A similar story applies to the licensing of adverb *together*, as shown in (5).

The c-command condition is also respected, as the contrast between (6a) vs. (6b) and between (7a) vs. (7b) below shows:

C-command Condition

- (6) a. **John and Mary** recommended each other.
 b. ***John and Mary's** advisor recommended each other.
- (7) a. **John and Mary** live together.
 b. ***John and Mary's** advisor lives together.

The PDE *each other* in (6a) is c-commanded by its antecedent in the subject position, i.e., *John and Mary*, whereas the PDE in (6b) is not c-commanded by its potential antecedent *John and Mary*, which is

properly contained in the subject. The same story can be repeated about the PDE *together* in (7).

2.2. PDEs in Korean

PDEs attested in Korean include dummy plural marker (DPM) *-tul*, reciprocal *selo* ‘each other’ and distributive adverb *kakkak* ‘each’. As will be seen shortly, Korean PDEs behave very much, though not exactly, like English PDEs in their distribution.

2.2.1. DPM *-tul*

Let us first examine the distribution of DPM *-tul*. According to Choe (1988), DPM is licensed when c-commanded by a local plural subject. To paraphrase, DPM must meet the following four conditions: i) it is linked to a plural element (the plurality condition), ii) its antecedent functions as subject (the subjecthood condition), iii) its antecedent is in the local domain (the locality condition), and iv) it is c-commanded by its antecedent (the c-command condition).

As shown in (8), DPM should be linked to a plural element. Plural subjects like *wuli* ‘we’ and *John-kwa Mary* ‘John and Mary’ can license DPM *-tul*, but singular subjects like *John* cannot.

(8) Plurality Condition

{wuli/John-kwa Mary/*John}	-un	nonmwun-ul	yelsimhi-tul
we/J.-and	M./J.-TOP	article-ACC	hard-DPM
ilk-ess-ta.			
read-PST-DE			
‘{We/John and Mary/#John} read articles hard.’			

DPM licensing is sensitive to the grammatical function of the antecedent that it is linked to. Consider the contrast between (9a) vs. (9b,c,d):¹⁾

1) Park and Sohn (1993: 203) claim that plural dative NPs can license DPM (and anaphors as well) when they function as ‘inner’ subjects in the sense of Kayne (1984).

(i) (adapted from Park and Sohn 1993, their (32))

John-i	haksayng-tul	-eykey	yenphil-ul	han-calwu-ssik-tul	cwu-ess-ni?
J.-NOM	student-PL-DAT		pencil-ACC	one-CL-each-DPM	give-past-QE
‘Did John give a pencil each to the students?’					

Ym (2002) abandons the subjecthood condition altogether, taking examples like (ii) and (iii):

(9) **Subjecthood Condition**

- a. **Tom-kwa** **Mary-ka** swukcey-lul ilccik-tul
 T.-and M.-NOM assignment-ACC early-DPM
 ceychwulha-ess-ta.
 submit-PST-DE
 'Tom and Mary submitted their assignments early.'
- b. ***Tom-i** **Mary-wa** **Sue-lul** seykey-tul ttayli-ess-ta.
 T.-NOM M.-and Sue-ACC hard-DPM hit-PST-DE
 'Tom hit Mary and Sue hard.'
- c. ***Tom-i** **Mary-wa** **Sue-eykey** ton-ul manhi-tul cwu-ess-ta.
 T.-NOM M.-and S.-DAT money much-DPM give-PST-DE
 'Tom gave a lot of money to Mary and Sue.'
- d. ***John-i** **Tom-kwa** **Mary-loputhe** chotay-lul
 J.-NOM T.-and M.-from invitation-ACC
 ecey-tul pat-ess-ta.
 yesterday-DPM receive-PST-DE
 'John received an invitation from Tom and Mary.'

When linked to subjects, DPM *-tul* is licensed, as in (9a). In contrast, when linked to other grammatical functions, for example, to direct objects as in (9b), to indirect objects as in (9c), or to oblique elements as in (9d), DPM is not allowed.

DPM should be linked to a local subject, as illustrated in (10).²

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- (ii) (= Ym 2002: 191, his (5b))
 han sonyen-i phungsen han kay ssik-ul sinnakey-tul thettuli-ess-ta.
 one boy-NOM balloon one CL each-ACC amusedly-DPM break-PST-DE
 'A boy broke each balloon in amusement.'
- (iii) (= Ym 2002: 193, his (5c))
 ku kyengchal-i ai-tul-ul cip-eyse-tul ttayli-ess-ta.
 that police/officer-NOM child-PL-ACC house-at-DPM beat-PST-DE
 'The police officer beat the children at their houses.'

He resorts to an event semantics approach to account for the distribution of DPM. Despite the singularity of the subject, he claims, these sentences are ruled in because there is some element that gives rise to an event plurality reading, that is, *ssik* 'each' in (ii) and indefinite plural expression *ai-tul* 'children' in (iii).

Most of the native speakers I consulted with judge the sentences in (ii) and (iii) to be from marginal to unacceptable. Apart from the subtlety in grammaticality judgment, the main claim to be made in this paper remains unaffected as far as the plurality condition and the c-command condition are to be satisfied.

2) Moon (1995) claims that the locality condition is loosened in a logophoric environment:

- (i) (=Moon 1995:356, his (2))

(10) **Locality Condition**

- a. **John-kwa** **Mary-ka** *ilccik-tul* ttena-ess-ta.
 J.-and M.-NOM early-DPM leave-PST-DE
 'John and Mary left early.'
- b. ***John-kwa** **Mary-nun** [Tom-i *ilccik-tul*
 J.-and M.-TOP T-NOM early-DPM
 ttena-ess-ta]-ko sayngkakha-n-ta.
 leave-PST-DE-C think-PRES-DE
 'John and think that Tom left early.'

(10a) is acceptable because DPM is linked to a plural subject in the local domain, while (10b) is not because its local subject is singular, although a plural element exists in the matrix clause.

The c-command condition seems to be strictly respected in DPM licensing. Consider the following sentences:

(11) **C-command Condition**

- a. ama **John-kwa** **Mary-ka** *sinnakey-tul* nol-ess-ul
 maybe J.-and M.-NOM joyfully-DPM play-PST-ADN
 kes-i-ta.
 thing-be-DE
 'Maybe John and Mary played joyfully.'
- b. *ama-tul **John-kwa** **Mary-ka** *sinnakey* nol-ess-ul
 maybe-DPM J.-and M.-NOM joyfully play-PST-ADN
 kes-i-ta.
 thing-be-DE
 'Maybe John and Mary played hard.'

(11a) and (11b) are exactly the same except that a DPM appears to the right of the trigger in (11a), while it appears to the left in (11b). If the linearity reflects the c-command relation, the c-command condition is met in (11a) but not in (11b), accounting for the contrast.

Salam-tul-i [s nalssi-ka manhi-tul chwuweciessta]-ko malha-pnita.
 People-PL-NOM weather-NOM a lot-DPM became;cold-C say-DE
 'People say that the weather became cold a lot.'

He argues that DPM behaves like an anaphor and as such is subject to Binding Principle A. Logophoricity extends the binding domain for DPM, just as for other regular anaphors.

2.2.2. Licensing of Other PDEs

Reciprocal *selo* 'each other' and distributive adverb *kakkak* 'each' are also subject to the plurality condition. Consider the sentences in (12) and (13), which indicate that such PDEs need to be linked to a plural subject.

Plurality Condition(12) **Reciprocal *selo*** 'each other'

{*wuli/John-kwa Mary/*John*}-un *selo-eykey* *si-lul*
 we/J.-and M./J.-TOP each;other-DAT poem-ACC
ilk-e cwu-ess-ta.
 read-E give-PST-DE
 'We/John and Mary/#John} read poems to each other.'

(13) **Distributor *kakkak*** 'each'

{*wuli/John-kwa Mary/*John*}-un *kakkak* *minyo-lul*
 we/J.-and M./ J.-TOP each folk;song-ACC
pwulu-ess-ta.
 sing-PST-DE
 'We/John and Mary/#John} each sang folk songs.'

They are also subject to the c-command condition. Consider the sentences in (14):

C-command Condition(14) a. **John-kwa Mary-nun** *selo-eykey* *senmwul-ul*

J.-and M.-TOP each;other-DAT gift-ACC

cwu-ess-ta.

give-PST-DE

'John and Mary gave a gift to each other.'

b. ***selo-ka John-kwa Mary-eykey** *senmwul-ul*

each;other-NOM J.-and M.-DAT gift-ACC

*cwu-ess-ta.*³⁾

give-PST-DE

#'Each other gave a gift to John and Mary.'

3) Anaphors are allowed in subject position in Korean.

(i) John-kwa Tom-un [*selo-ka* *iki-ess-ta-ko*] *cwucangha-ess-ta.*
 J.-and T.-TOP each;other-NOM win-PST-DE-C claim-PST-DE
 'Each of John and Tom claimed that the other/he won.'

- c. *Tom-un selo-eykey **John-kwa** **Mary**-lul
 T.-TOP each;other-DAT J.-and M.-ACC
 sokayha-ess-ta.
 introduce-PST-DE
 'Tom introduced John and Mary to each other.'

Selo is c-commanded by a plural subject in (14a), which is grammatical. The c-command relation is reversed in (14b) and (14c) and such sentences are ungrammatical.

Similarly in (15), distributive adverb *kakkak* is fine only when c-commanded by its antecedent.

- (15) a. **John-kwa** **Mary**-nun kakkak minyo-lul pwulu-ess-ta.
 J.-and M.-TOP each folk;song-ACC sing-PST-DE
 'John and Mary each sang folk songs.'
 b. ***Mary**-nun kakkak **minyo-wa** **phopsong**-ul
 M.-TOP each folk song-and pop song-ACC
 pwulu-ess-ta.
 sing-PST-DE
 #*Mary each sang folk songs and pop songs.'

Unlike DPM *-tul* and reciprocal *selo*, distributive adverb *kakkak* does not need to satisfy the subjecthood condition. Look at the sentence in (16), where the distributive adverb *kakkak* is linked to the indirect object.

- (16) John-un **Mary-wa** **Sue**-eykey kakkak 10 dalla-ssik cwu-ess-ta.
 J.-TOP M.-and S.-DAT each 10 dollar-each give-PST-DE
 'John gave each of Mary and Sue 10 dollars.'

To sum up the section, to be properly licensed, Korean PDEs such as DPM *-tul*, reciprocal *selo*, and distributive adverb *kakkak* need to be bound, therefore c-commanded, by a plural antecedent (in the local domain for the first two). With this in mind, let us examine in Section 3 how these elements behave in VLC.

3. VLC Feeds PDE Licensing

In this section it will be observed that VLC in Korean feeds the licensing of otherwise unlicensed PDEs.

DPM is not licensed in a simple or coordinate sentence when no plural element is available in the local domain, as shown in (17a) and (17b). Interestingly, however, VLC feeds the licensing of DPM, as in (17c).

- (17) a. **John**-un nonmwun-ul yelsimhi(*-tul) ilk-ess-ta.
 J.-TOP article-ACC hard-DPM read-PST-DE
 'John read articles hard.'
- b. **John**-un nonmwun-ul yelsimhi(*-tul) ilk-ko
 J.-TOP article-ACC hard-DPM read-and
Mary-nun chayk-ul yelsimhi(*-tul) ilk-ess-ta.
 M.-TOP book-ACC hard-DPM read-PST-DE
 'John read articles hard and Mary read books hard.'
- c. **John**-un nonmwun-ul (kuliko) **Mary**-nun chayk-ul
 J.-TOP article-ACC and M.-TOP book-ACC
 yelsimhi(-tul) ilk-ess-ta.
 hard-DPM read-PST-DE
 'John read articles hard and Mary read books hard.'

Similar stories can be said about the reciprocal *selo* and distributive adverb *kakkak*, as shown below:

- (18) a. ***John**-un si-lul selo-eykey ilk-e cwu-ess-ta.
 J.-TOP poem-ACC each other-DAT read-E give-PST-DE
 #'John read poems to each other.'
- b. ***John**-un si-lul selo-eykey ilk-e cwu-ko
 J.-TOP poem-ACC each;other-DAT read-E give-and
Sue-nun sosel-ul selo-eykey ilk-e cwu-ess-ta.
 S.-TOP story-ACC each;other-DAT read-E give-PST-DE
 #'John read poems to each other and Sue read stories to each other.'

- c. **John**-un si-lul (kuliko) **Sue**-nun sosel-ul
 J.-TOP poem-ACC and S.-TOP story-ACC
selo-eykey ilk-e cwu-ess-ta.
 each;other-DAT read-E give-PST-DE
 'John read poems and Sue read stories to each other.'

- (19) a. ***Tom**-un minyo-lul (*kakkak) pwulu-ess-ta.
 T.-TOP folk;song-ACC each sing-PST-DE
 'Tom each sang folk songs.'
- b. ***Tom**-un minyo-lul (*kakkak) pwulu-ko
 T.-TOP folk;song-ACC each sing-and
Sue-nun phapsong-ul (*kakkak) pwulu-ess-ta.
 S.-and pop;song-ACC each sing-PST-DE
 'Tom each sang folk songs and Sue each sang pop songs.'
- c. **Tom**-un minyo-lul (kuliko) **Sue**-nun phapsong-ul
 T.-TOP folk;song-ACC and S.-and pop;song-ACC
 (kakkak) pwulu-ess-ta.
 each sing-PST-DE
 'Tom each sang folk songs and Sue each sang pop songs.'

4. Previous Analyses Fail

The contrast between (17b) vs. (17c) with respect to the DPM licensing, or more generally the contrast between 'verbed' vs. 'verbless' coordination with respect to the licensing of PDEs, cannot be accounted for by previous analyses put forth in the literature as to the Korean and Japanese VLC.

In Abe & Hoshi (1993, 1997), remnants in VLC move out of the ellipsis site at LF and the phrase in the ellipsis site is copied from the second conjunct, as schematically illustrated in (20).

- (20) a. LF Raising
 XP ... YP_i ... [_{VP} ... e_i ...] & KP ... LP_j ... [_{VP} ... e_j V ...]
- b. LF-Copying
 XP ... YP_i ... [_{VP} ... e_i V ...] & KP ... LP_j ... [_{VP} ... e_j V ...]

In Kim (1997), remnants move out of the ellipsis site in overt syntax (for the purpose of focus feature checking) and the phrase in the ellipsis site

loses its PF content (via PF deletion).

(21) a. Focus Raising

$XP_i \dots YP_j \dots [TP \ e_i \dots e_j \dots V] \ \& \ KP_k \dots LP_l \dots [TP \ e_k \dots e_l \dots V]$

b. PF Deletion

$XP_i \dots YP_j \dots [\cancel{TP \ e_i \dots e_j \dots V}] \ \& \ KP_k \dots LP_l \dots [TP \ e_k \dots e_l \dots V]$

What is common in both analyses is that elements in the second conjunct do not have any direct syntactic relation with elements in the first conjunct except that they provide some content identification for the ellipsis site in the first conjunct.

The two analyses cannot account for the feeding relation observed in the previous section. They predict that the overtly realized DPM in (17c), for example, will belong to the second conjunct, while a silent DPM resides in the first conjunct. The DPMs not being licensed in either conjunct, (17c) is incorrectly ruled out, just as (17b) is.

Saito (1987) proposes a PF (across-the-board) right node raising (RNR) analysis for VLC. According to this analysis, (17c) will be derived from (17b), as schematically represented in (22) below:

(22) a. $[[XP \dots YP \dots [\alpha \dots \text{-DPM} \dots V \dots]] \ \& \$

$[KP \dots LP \dots [\alpha \dots \text{-DPM} \dots V \dots]]$

b. $[[[XP \dots YP \dots e_i] \ \& \ [KP \dots LP \dots e_l]] \ [\alpha \dots \text{-DPM} \dots V \dots]]_j$


 (Across-The-Board RNR at PF)

The RNR analysis fails as it stands. Being a PF operation, RNR would not affect the syntactic structure. Then the syntactic structure of (17c), for example, will be identical with that in (17b), where the DPMs are not licensed in either conjunct.

Even if RNR in VLC is construed as an instance of syntactic movement, the RNR analysis fails for the following reason. Before the raising takes place, the DPMs in both conjuncts are linked to a singular subject, violating the plurality condition, just as in (17b). After the raising takes place, the RNRed DPM is not c-commanded if RNR, as an instance of movement, is upward. A large scale RNR preceded by leftward movement of remnants may seem to avoid the problem. Suppose, for example, that a clausal level RNR takes place after subject and object undergo a leftward

raising (LR) in (17c), as schematically illustrated below:

- (23) a. LR: $[[[s_1 \text{ Tom}_i [s_2 \text{ paper}_j [s_3 \text{ t}_i \text{ t}_j \text{ hard-DPM read}]]] \& [[s_1 \text{ Mary}_i [s_2 \text{ book}_j [s_3 \text{ t}_i \text{ t}_j \text{ hard-DPM read}]]]]$
 b. RNR: $[[[s_1 \text{ Tom}_i [s_2 \text{ paper}_j [s_3 \text{ t}_k]]] \& [[s_1 \text{ Mary}_i [s_2 \text{ book}_j [s_3 \text{ t}_k]]] [s_3 \text{ t}_i \text{ t}_j \text{ hard-DPM read}]]_k]$

If the subject in the RNRed part in (23b), i.e., t_i , is interpreted as plural, the RNR analysis can account for the DPM licensing in VLC. However, what remains unexplained is that DPMs in (23a) are unlicensed before RNR takes place. Notice that both conjuncts have a singular subject at the outset. One last option left is to assume that DPM is merged after RNR takes place. This would, however, lead to a cyclicity problem in derivation or a violation of Chomsky's (1995) extension condition. Notice that the DPM in (23b) is properly contained in the RNRed part.

Furthermore, VLC is immune from various island constraints like the Left Branch Condition, the Complex Noun Phrase Constraint, and the Adjunct Condition, as exemplified in (24) through (26).⁴⁾

- (24) John-i Mary(-uy) kuliko Tom-i Sue-uy nonmwun-ul
 J.-NOM M.-GEN and T.-NOM S.-GEN paper-ACC
 towacwu-ess-ta.
 help-PST-DE
 Lit 'John helped Mary's and Tom helped Sue's paper.'

- (25) John-un Mary(-ka) kuliko Tom-un Sue-ka ssu-un
 J.-TOP M.(-NOM) and T.-TOP S.-NOM write-ADN
 nonmwun-ul simsaha-ess-ta.
 paper-ACC review-PST-DE
 'John reviewed the paper that Mary wrote and Tom reviewed the paper that Sue wrote.'

4) Kim (1997: 201-202) admits that Korean VLC may violate the Left Branch Condition, although he claims that it is generally subject to island constraints. My Korean consultants agree on the lack of island effects. Mukai (2003) also reports that Japanese VLC displays no island effects.

- (26) John-un Mary(-ka) kuliko Tom-un Sue-ka
 J.-TOP M.-NOM and T.-TOP S.-NOM
 o-ess-ki. ttaymwuney ilccik ttena-ess-ta.
 come-PST-because early leave-PST-DE
 'John (left early because) Mary (came) and Tom left early
 because Sue came.'

This indicates that VLC does not involve any syntactic leftward movement that precedes the RNR. Thus, the large scale RNR analysis that crucially hinges on syntactic leftward movement fails to account for the feeding relation of DPM licensing in VLC. Abe & Hoshi's analysis and Kim's face the same problem since they also assume leftward movement.⁵⁾

Mukai (2003) analyzes (Japanese) VLC as a string deletion at PF upon availability of an identical PF string in the last conjunct: the elided part need not form a constituent since it is a 'string' deletion process 'at PF'.

- (27) $XP \dots YP \dots \left[\begin{array}{c} \alpha \\ \hline \dots \\ \beta \end{array} \dots V \dots \right] \& KP \dots LP_j \dots [\alpha \dots V \dots]$
 (where, α and β are identical PF strings)

Since no movement is assumed, the lack of island effects naturally follows in Mukai's analysis.

However, there are some non-trivial problems with her analysis. First, VLC is possible despite the wide range of morphological/phonological variation in a language like Korean. Consider, for example, the sentences in (28) and (29):

5) An anonymous reviewer points out to me the possibility that VLC lacks island effects because the movement in question takes place at LF or PF. Then, Abe and Hoshi's LF copy approach may be free from the criticism mentioned in the text. Notice, however, that there should be no level distinction at least in the syntax side according to the current generative grammar. The difference between SS vs. LF movement that used to be claimed to exist should be reinterpreted as category vs. feature movement or as movement vs. agree, etc. Abe and Hoshi's system does require a category movement in (20a). Otherwise, i.e., if YP leaves anything behind within VP, the copying process in (20b) cannot be facilitated. Furthermore, the PDE licensing in VLC cannot be accounted for by their system, as argued in the text.

- (28) a. John-un sensayngnim*(-i)-ta.
 J.-TOP teacher-be-DE
 ‘John is a teacher.’
 b. Mary-nun uysa(-i)-ta.
 M.-TOP doctor-be-DE
 ‘Mary is a doctor.’
- (29) John-un sensayngnim, (kuliko) Mary-nun uysa-ta.
 J.-TOP teacher and M.-TOP doctor-DE
 ‘John is a teacher, and Mary is a doctor.’

As shown in (28), copular verb *i* in Korean may or may not be realized depending on the phonetic value of the last segment of the preceding element: it must be realized when preceded by a consonant as in (28a), while it may be deleted when preceded by a vowel, as in (28b). Now consider the VLC in (29), where no copular verb is realized in the second conjunct, but the last element in the remnant of the first conjunct, that is, *sensayngnim*, requires an overt copular. Thus, strictly speaking, the target in the first conjunct and the correlate in the second conjunct are not phonetically identical, despite the possibility of forming a VLC structure.⁶⁾

More crucially, Mukai’s analysis cannot account for the contrast between V-ed coordination and V-less coordination (VLC) with respect to the PDE licensing. Consider the sentences in (17), repeated below:

- (17) a. **John**-un nonmwun-ul yelsimhi(*-tul) ilk-ess-ta.
 J.-TOP article-ACC hard-DPM read-PST-DE
 ‘John read articles hard.’
 b. **John**-un nonmwun-ul yelsimhi(*-tul) ilk-ko
 J.-TOP article-ACC hard-DPM read-and
 Mary-nun chayk-ul yelsimhi(*-tul) ilk-ess-ta.
 M.-TOP book-ACC hard-DPM read-PST-DE
 ‘John read articles hard and Mary read books hard.’

6) As an anonymous reviewer points out, Mukai’s PF string deletion approach may not suffer from the problem mentioned in the text if *-i* in (28) is not a copular verb but a case marker, and case markers realize at the late stage of PF, after the string deletion.

- c. **John-un** nonmwun-ul (kuliko) Mary-nun chayk-ul
 J.-TOP article-ACC and M.-TOP book-ACC
 yelsimhi(-tul) ilk-ess-ta.
 hard-DPM read-PST-DE
 'John read articles hard and Mary read books hard.'

If, as Mukai (2003) claims, the string deletion were merely a PF process, (17b) and (17c) would have exactly the same structure in syntax, despite the difference at PF. Then, they should behave alike with respect to the PDE licensing, which is a syntactic process, as argued in Section 2. In other words, (17c) is expected to be illegitimate, just as (17b) is, which is not borne out.

5. Towards an Explanation

To satisfy the licensing conditions, especially the plurality condition, the DPM in (17c) should be somehow directly linked to the subjects scattered in both conjuncts. How is this possible? One possibility is to maintain that coordination in a language like Korean allows a parallel/tandem structure along the similar lines of Goodal's (1987), Muadz's (1991), and Moltmans's (1992) analysis of English gapping, as represented schematically in (30).

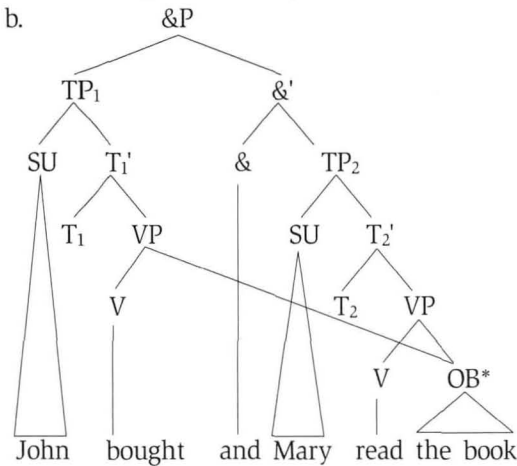
- (30) Tom-NOM paper-ACC ———— hard-DPM read.
 Sam-NOM book-ACC ————

Now the DPM is linked to two, therefore plural, subjects, although the subject in each conjunct may be singular, fulfilling the plurality condition. The other conditions are also met in the structure. The DPM that is attached to an adverbial element inside VP is linked to the scattered but local subjects, satisfying the subjecthood condition, the locality condition, and the c-command condition. As far as the PDE licensing in VLC is concerned, the three-dimensional parallel structure seems to be better than the previously mentioned analyses. However, the three-dimensional structure has some theoretical burden, especially in relation to the linearization between conjuncts.

So I would like to introduce another solution to the PDE licensing in VLC, which does not resort to a three-dimensional structure. It is to adopt

Wilder's (1997, 1999) multiple dominance analysis. Basic assumptions made in his system are: (i) coordination is asymmetric and (ii) the apparently 'RNRed' part is shared by both conjuncts.⁷⁾ For example, the sentence in (31a) has the structure in (31b):

(31) a. John bought and Mary read the book.



As will be seen shortly, the multiple dominance analysis is able to solve the PDE licensing in VLC without violating Kayne's (1994) Linear Correspondence Axiom (LCA).

The gist of the LCA is that asymmetric c-command between two categories maps to precedence between a pair of sets of terminals. The mapping is mediated by the concept of the *image* of a category, such that the set of terminals that is the image of one category, X, precedes the set of terminals in the image of another, Y, which X asymmetrically c-commands. C-command and image are defined as below:⁸⁾

7) Wilder (1999: 590, his (18)) defines sharing as follows:

(i) α is shared by X and Y iff (i) neither of X and Y dominates the other, and (ii) both X and Y dominate α .

The so-called single mother condition no longer holds under the multiple dominance analysis.

8) (32) and (33) are cited from Wilder (1999, his (20) and (23), respectively).

- (32) X c-commands Y iff (i) $X \neq Y$, (ii) X does not dominate Y , (iii) Y does not dominate X , and (iv) all categories that dominate X dominate Y .
- (33) The image of a category X , $d(X)$, is the unordered set of terminals that α dominates. The image of an ordered pair of categories $\langle X, Y \rangle$ is the set of ordered pairs of terminals $d(X) \times d(Y)$.

Under the definitions of c-command and image, however, the shared constituents in the VLC structure cannot be legitimately linearized. Take the structure in (31) for example. Given TP_1 and TP_2 sharing OB^* in (31), where TP_1 asymmetrically c-commands (into) TP_2 , the terminals of OB^* , included in both $d(TP_1)$ and $d(TP_2)$, inevitably precede themselves when the terminals of TP_1 and TP_2 are ordered, violating the irreflexivity requirement.⁹⁾

To account for the linearization in RNR structure, Wilder (1999) modifies the notions of c-command and image with the following qualifications:

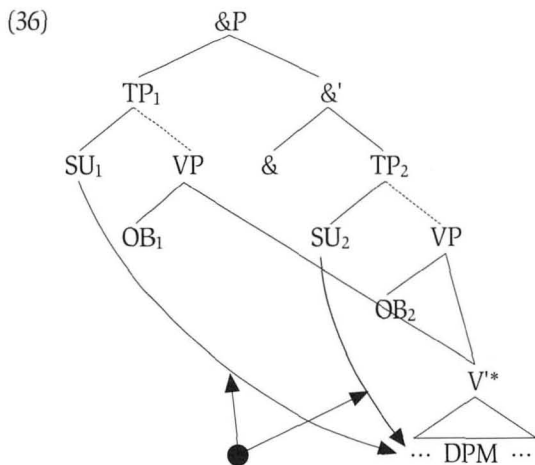
- (34) X c-commands Y only if X does not *fully dominate* Y .
- (35) $d(X)$ = the (unordered) set of terminals *fully dominated* by X .

Now the irreflexivity requirement is fulfilled since OB^* is neither in $d(TP_1)$ nor $d(TP_2)$ since neither TP_1 nor TP_2 fully dominates OB^* . TP_1 c-commands into OB^* , guaranteeing that elements in TP_1 (except for OB^*) precede the terminals of OB^* , satisfying the totality requirement.

Let us now apply the multiple dominance analysis to the VLC with a PDE in Korean. Take (17c) for example. The relevant part will have the structure given in (36) below:¹⁰⁾

9) For a tree T , the LCA takes the image of the set CC of all pairs of categories $\langle X, Y \rangle$ in T such that X asymmetrically c-commands Y . The output is wellformed iff $d(CC)$ = a linear (asymmetric, irreflexive, transitive, total) ordering of terminals of T .

10) Kayne's LCA requires that heads be universally initial, which is ignored here.



Satisfy the plurality/subjecthood/locality/c-command conditions

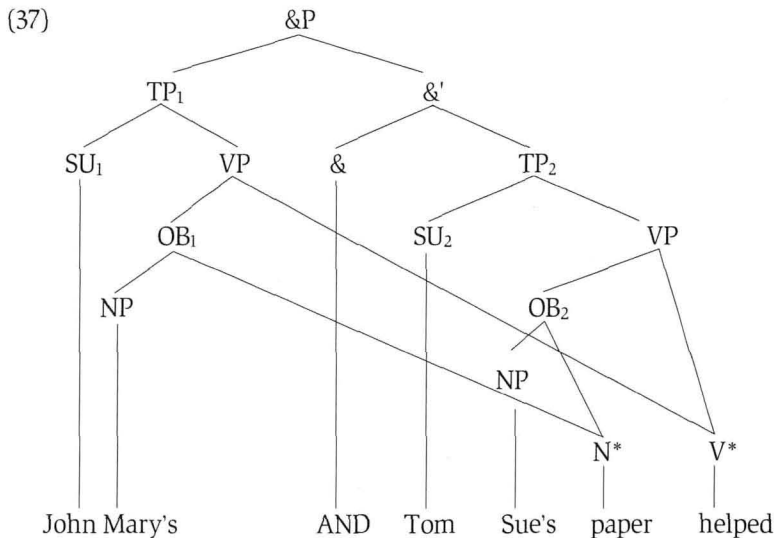
The DPM under the shared node, i.e., V'^* , will be co-c-commanded by the subjects that are scattered across the conjuncts, thereby satisfying all the licensing conditions required. The plurality condition is satisfied since the DPM is linked to two, therefore plural, elements, even when the linked element in each conjunct is singular. The subjecthood condition is satisfied since the DPM is linked to subjects. The locality condition is satisfied since there is no clause boundary between the DPM and its antecedents. The *c-command* condition is satisfied since the subject in each conjunct c-commands the DPM.

One may be curious about how the multiple dominance analysis deals with the structure in which the shared part does not form a constituent, as in the examples in (24) through (26).¹¹⁾ Let us consider (24), repeated below.

- (24) John-i Mary(-uy), kuliko Tom-i Sue-uy nonmwun-ul
 J.-NOM M.-GEN and T.-NOM S.-GEN paper-ACC
 towacwu-ess-ta.
 help-PST-DE
 Lit 'John helped Mary's and Tom helped Sue's paper.'

¹¹⁾ I thank Keun-Won Sohn (p.c.) and an anonymous *LR* reviewer for raising this question.

Clearly, the shared part, *nonmwun-ul towacwu-ess-ta*, does not form a constituent without the specifier of the nominal expression in the object position. The existence of such a structure, however, does not necessarily indicate that the multiple dominance analysis of Korean VLCs is incorrect. Suppose that syntax allows more than one occurrence of multiple dominance. Then (24) will roughly have the structure in (37) below:



What is shared by both conjuncts in this structure is not a string of non-constituents but two separate constituents, i.e., N^* and V^* . With the permission of such multiple occurrences of multiple dominance, the VLC that apparently involves a non-constituent sharing can be subsumed under the multiple dominance analysis.¹²⁾

12) An anonymous reviewer casts some doubt on the possibility of generating the following scrambling structure under the multiple dominance analysis.

(i) Tom-un Mary-lul, (kuliko) John-un Sue-lul, [nayil e_{1/1} manna-l kes-i-ta].
 T-TOP M-ACC and J-TOP S-ACC tomorrow meet-ADN thing-be-DE
 'Tom will meet Mary and John will meet Sue tomorrow.'

The objects seem to have undergone a leftward movement across the temporal adverbial *nayil* 'tomorrow'. We have, however, argued against the analyses which assume a leftward movement in VLC because VLC is possible in island contexts. (See Section 4.) There seem to be at least two ways to get out of this problematic situation. A simpler way is to assume with Bošković and Takahashi (1998) that scrambling is not an overt syntax movement: scrambled elements are base generated at the surface position and lowered to

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their thematic positions at LF. Given this assumption, sentences like (i) will be trivially explained by the multiple dominance analysis. A second possibility is to assume that scrambling is possible even in VLC but only when no island intervenes. Sentences like (ii), in which an island intervenes between the surface positions of the scrambled elements and their original positions, are not acceptable:

- (ii) *Tom-un NY-eyse, (kuliko) John-un LA-eyse, [nayil [isand [e_V/] thayena-n] salam-ul]
 T-TOP NY-in and J-TOP LA-in tomorrow be;born-ADN man-ACC
 manna-l kes-i-ta].
 meet-ADN thing-be-DE
 'Tom will meet a person who was born in NY and Mary will meet a person who was born in LA tomorrow.'

Given the scrambling possibility in non-island contexts, the object in the second conjunct in (i) is scrambled, and then the bracketed part is shared by both conjuncts. The variation in the interpretation of the element in the thematic position may look a bit problematic since the object in the first conjunct has never been in its thematic position, but any other theory has to assume some sort of such variation. (Notice that copy or deletion applies despite the possible difference in the value of the variable position.) Even when syntactic scrambling is assumed in this way, and the bracketed part is shared in (i), the LCA will be respected since traces do not count in calculating the image of a category.

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